

Remarks

Summary

Claims 1-13 were pending. Claim 1 has been rewritten and Claims 14-19 added. No new matter has been added as a result of this amendment. Claims 1-19 are pending after entry of this amendment.

IDS

In the Office Action of June 17, 2003, the Examiner stated that the IDS filed September 12, 2001 fails to comply with 37 CFR 1.98(a)(1), which requires a list of all patents, publications, or other information submitted for consideration by the Office. Applicants submit that no such IDS was filed. The only IDS Applicants filed was on December 6, 2000, with the Application. In the IDS filed on December 6, 2000, Applicants included a copy of the single reference cited and the Examiner appropriately initialed and returned a copy of the PTO 1449 in the last Office Action.

Applicants respectfully request that the Examiner address this issue in the next Office Action.

Objection to Drawings

In the Office Action of June 17, 2003, Figures 5 and 6 were objected to as not being designated by a legend such as --Prior Art-- because only that which is old is illustrated. Applicants submitted a corrected version of Figs. 5 and 6 with corrections marked in red in the Preliminary Amendment submitted on December 6, 2000 and requested that the Examiner approve the corrections. Applicants enclosed a copy of the corrected figures in the previous response. As the Examiner has not addressed this issue either, Applicants assume that he has tacitly agreed to the changes. Applicants herein submit formal drawings.

Rejection of Claims

In the Office Action, Claims 1-13 were rejected under 35 U.S.C. §103(a) as being unpatentable over Applicant's Admitted Prior Art (AAPA) in view of Fujioka (U.S. Patent 6,552,762) and Miyazaki (U.S. Patent 5,978,061). Applicants have amended Claim 1 and submit that pending Claims 1-19 overcome the rejection.

Claim 1 recites that the color filter substrate has a visible area that contains an effective display area and a margin area which is outside the effective display area. The color filter layer, the transparent electrode, and the alignment layer of the color filter substrate are formed in a region which includes the effective display and margin areas. The color filter layer has two different vertically aligned color layers only outside the effective display area. Thus, the color filter layer in the effective display area is arranged differently from the color filter layer in the area outside the effective display area. Such an arrangement permits a reduction in the amount of light in the margin area reflected at the reflective layer and thereby improves the visibility of a reflective liquid crystal display in the effective display area. The margin area appears close to black without the use of an additional layer such as a light-shielding layer (black mask), thereby increasing manufacturing efficiency and brightness.

None of the cited references, alone or in combination, anticipate or suggest such an arrangement. AAPA illustrates conventional arrangements in which the structure of the color filter layer outside the effective display area simply does not exist.

1) Fujioka teaches arrangements in which the color filters both inside and outside the effective display area are arranged in a similar manner, which is only in a single layer. Fujioka does not teach an arrangement in which the color layers of the color filter layer are vertically aligned outside the effective display area. Similarly, Miyazaki teaches arrangements in which the color filters both inside and outside the effective display area are arranged in a similar manner (multiple layers) for the express purpose of creating columnar spacers throughout the liquid crystal device. Thus, Miyazaki particularly teaches away from the arrangements of AAPA and the pending claims as the stack of the color filters maintains the distance between the upper and lower substrates. The color filters of the pending claims on the other hand, reduce the amount of light reflected by the reflective layer.

2) Applicants again submit that no suggestion or motivation exists to combine the references. Both Fujioka and Miyazaki are directed towards transmissive liquid crystal devices while AAPA and the present claims are directed towards reflective liquid crystal devices, which have entirely different structures. The teachings of

Fujioka and Miyazaki cannot be easily incorporated in the arrangement of AAPA. Applicants discussed this in the previous Office, however, the Examiner failed to respond to this point. Applicants respectfully request that the Examiner specifically discuss this in the next Office Action.

Moreover, it is improper to merely pick and choose various individual elements in different references and combine them without motivation to do so (see MPEP 2143.01). Beyond the differences between transmissive and reflective liquid crystal devices, Miyazaki particularly teaches structures in which the purpose and advantage comes from stacking color layers throughout the entire device, which is entirely unlike the arrangements of the pending claims and other references. Thus, this reference simply cannot be combined with AAPA or Fujioka.

For at least these reasons, none of the cited references, alone or in combination, cited by the Examiner anticipate or suggest the arrangement of Claim 1. Thus, the pending claims are patentable over the cited references.

Other claims are independently patentable over the references cited by the Examiner. As examples only:

Claim 12 meanwhile recites that the color filter layer is formed directly on the reflective layer. Both Fujioka and Miyazaki teach expressly away from AAPA and the arrangement of Claim 12, instead teaching that a highly reflective material is disposed on the TFTs and the color filter is formed on the substrate opposing the reflective layer (Fujioka) or that a light shielding layer is disposed between the color filter layer and the substrate (Miyazaki). Miyazaki thus expressly teaches away from AAPA. The Examiner is respectfully requested to respond to this argument as he did not answer in the previous Office Action.

Claim 13 recites spherical spacers separate the color filter substrate and the second substrate. As noted above, Miyazaki expressly teaches away from using spherical spacers, teaching instead the use of a stack of the color filters as spacers.

Claims 15 and 16 recite the lack of a light-shielding layer. The light-shielding layer is undesirable due to the inability to view the display in low background conditions as well as complicating the manufacturing process. Both Fujioka and Miyazaki teach arrangements using a light-shielding layer. Miyazaki, for example, in every embodiment teaches the use of a light shielding layer between the color filter layer and the substrate (either on the substrate or on the light shielding layer).

Nor does any of the references teach arrangements in which the vertically aligned color layers are disposed both in the margin area and in the external peripheral portion disposed between the visible area and sealing material, as recited in Claim 17, or, more specifically, that the vertically aligned color layers are continuously disposed between the margin area and the external peripheral portion, as recited in Claim 18.

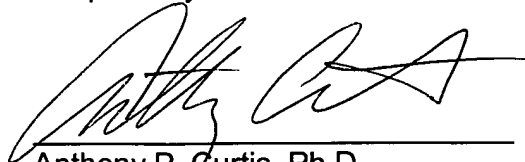
Similarly, the color layers recited in Claim 19 are specifically arranged in a single layer in the effective display area and are vertically aligned outside the effective display area. The references cannot be combined to provide such a structure, as indicated above.

For at least these reasons, none of the references cited by the Examiner, alone or in combination, anticipate or suggest the arrangement of these claims. Thus, the dependent claims are independently patentable over the cited references.

Conclusion

In view of the amendments and arguments above, Applicants respectfully submit that all of the pending claims are in condition for allowance and seek an early allowance thereof. If for any reason the Examiner is unable to allow the application in the next Office Action and believes that a telephone interview would be helpful to resolve any remaining issues, he is respectfully requested to contact the undersigned.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Anthony P. Curtis', is written over a horizontal line.

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